

Remarks

The Final Office Action of October 21, 2010 has been carefully considered. Claims 5, 8 and 9 are cancelled. Claims 1, 2 and 12 - 15 are currently pending.

Claim Rejections - 35 U.S.C. § 103

Claims 1, 2, 5, 8, 9 and 14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsuda, et al. (US 56156409) in view of Hosokawa, et al. (JP 2002-201202 A – a machine translation provided by the Applicant is used herein) and as evidenced by Watanabe, et al. (US 5989391).

The Applicants contend that the references are not appropriately combined. Without Applicants' own disclosure as a roadmap, it is without question that one of ordinary skill in the art would not have had any reason to turn to Hosokawa, et al., much less substitute the specific cationically modified cellulose ether derivative described in Hosokawa, et al.

In the Response to Arguments section of the Final Office Action on page 2, third paragraph, the Examiner cites case law in which the Examiner states that he "recognizes that obviousness may be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found in the references themselves or in the knowledge generally available to one of ordinary skill in the art." In applying the law, the Examiner then states that Matsuda, et al. discloses a paper coating comprising a CMC binder adhesive, but concedes that Matsuda, et al. provides little guidance on the nature of the CMC as a binder. Where the law indicates the presence of some teaching, suggestion or motivation is required to combine or modify the prior art, the

Examiner instead relies on the lack of guidance in Matsuda, et al. as the rationale for turning to Hosokawa, et al. That is, the Examiner alleges that one of ordinary skill in the art would have turned to other sources, such as Hosokawa, et al., for the nature of CMC that can be used as the binder based on the lack of guidance present in Matsuda, et al. on the materials. Clearly, this is contrary to the case law. The Examiner's position that of all of the sources available disclosing possible CMCs useful as binders, one of ordinary skill in the art would have chosen the specific cationically modified cellulose ether derivative of Hosokawa, et al., without any guidance from Matsuda, et al. clearly is a use of impermissible hindsight and/or an improper obvious to try standard.

Alternatively, to the extent Examiner contends that it would have been obvious to try a general approach that seemed to be a promising field of experimentation, where the prior art gave only general guidance as to the particular form of the claimed invention or how to achieve it.". As set forth in M.P.E.P. Section 2145 (X)(B), such an obvious to try standard is an improper rationale for combining references.

Matsuda, et al. discloses that its paper comprises a coating in an amount of 2 to 10 g/m² on at least one surface, the coating comprising a white pigment and a binder such as carboxymethyl cellulose. Further, from among a list of possible binders for its coating layer, Matsuda, et al. generally discloses the use of cellulose derivatives as a binder in its coating layer, while exemplifying carboxymethyl cellulose (CMC), hydroxethyl cellulose (HEC) and hydroxypropyl methyl cellulose (HPMC). Here, even among the exemplary celluloses, the list encompasses large numbers of possible celluloses. Moreover, none of the binders identified in Matsuda, et al. are cationically modified polymers, much less that the specified cellulose ethers are cationically

modified. Rather, the cellulose derivatives of Matsuda, et al. are CMC, which is anionic, and HEC and HPMC, which are nonionic. Regardless of this lack of teaching, the Examiner alleges that one of ordinary skill in the art would have been able to determine and use the cationically modified CMC of Hosokawa, et al. having adhesive properties as the binder in the coating of Matsuda, et al. and have a reasonable expectation of success in obtaining a suitable coating. This conclusion presumes, however, that one of ordinary skill in the art would have known to select Hosokawa, et al. in the first place, and second that a cationically modified CMC can be substituted for non-modified CMC. Here again, without Applicants' own disclosure, there is no teaching, suggestion or motivation for one of ordinary skill in the art to select the specific cationically modified cellulose ether derivative of Hosokawa, et al. in the first place or that such modification would provide a reasonable expectation of success.

In combining Matsuda, et al. with Hosokawa, et al., the Examiner has ignored the teachings of Matsuda, et al. and Hosokawa, et al. that lend credence to Applicants' contention against the combination of Matsuda, et al. with Hosokawa, et al. First, Matsuda, et al. discloses that its CMC binder is in a coating layer; Hosokawa's cationically modified cellulose ether is in the paper. Second, Matsuda's CMC binder is not cationically modified, but rather the cellulose derivatives disclosed are CMC, which is anionic, and HEC and HPMC, which are nonionic. The Examiner appears to treat the two as equivalent; however, this is erroneous. In fact, the Examiner provides no reason why one of ordinary skill in the art would have substituted the cationically modified cellulose ether of Hosokawa with the nonionic CMCs of Matsuda, et al. Contrary to the Examiner's position of the interchangeability of cationically modified cellulose ethers

with the non-cationically substituted cellulose derivatives of Hosokawa, et al., cationic groups have strong adherence to particles, such as pigments, typically found in paper coatings. As a result, the use of cationically modified cellulose ethers in paper coatings can result in flocculation of the coating, which is detrimental to the coating, rather than providing good dispersion, which is important to the coating. In contrast, the use of cationically modified cellulose ethers in papers, such as described in Hosokawa, et al., are for different applications with different concerns.

In addition, at page 3 of the present application, it is described that the claimed cationically modified cellulose ether outperforms nonsubstituted CMC, such as disclosed in Matsuda, et al.

Applicants' invention as recited in Claims 1 and 12 is directed to a paper comprising a filler content of above 20 wt% and a cellulose ether. The claimed cellulose ether has a DS of quaternary ammonium of between 0.01 and 0.7, thus it has a cationic modification. It is the combination of the paper having a high filler content and the cationically modified cellulose ether that provides for an improved retention of the filler and allows the highly filled paper to be produced more economically than conventional papers. While Hosokawa, et al. discloses a cationically modified cellulose ether, Hosokawa, et al. does not disclose, suggest or even hint at recognizing this advantage. In fact, Hosokawa, et al. is silent with respect to such high filler content.

Accordingly, the invention as recited in Claims 1 and 12 is patentable over the combination of Matsuda, et al. and Hosokawa, et al.

Claims 1, 2, 5, 8, 9 and 14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsuda, et al. (US 56156409) in view of Hosokawa, et al. and further in view of Ferguson, et al. (US 4,808633). This rejection is traversed.

Regarding the rejection of claim 12 based on the combination of Matsuda, et al. and Hosokawa, et al. with Ferguson, et al., here again the Examiner resorts to the rationale that because of the lack of guidance in Matsuda, et al., one of ordinary skill in the art would have turned to other sources, and not just any source, but Hosokawa, et al. in particular. As noted above, such rationale relies on impermissible hindsight and/or an improper obvious to try standard. In addition, Ferguson, et al. fails to disclose or suggest the method of making the paper as set forth in Claim 1, either alone or in combination with Matsuda, et al. and/or Hosokawa, et al., as Ferguson, et al. fails to make up for the deficiencies of Matsuda, et al. and Hosokawa, et al. as noted above. Ferguson, et al. only exemplifies a non-ionic cellulose derivative, i.e. hydroxyethyl cellulose, which is specifically excluded from Applicants' claims and cannot be considered the functional equivalent of the claimed cationically modified cellulose ether or the cationically modified CMC of Hosokawa, et al. Accordingly, one of ordinary skill in the art, reading Ferguson, et al. as a whole, would not have relied on the teachings of Ferguson, et al. to arrive at Applicants' claimed invention, as this teaching in Ferguson, et al. leads away from Applicants' claimed invention. It is also noted that where the Examiner indicates that independent Claim 1 does not require the cellulose derivatives to be in the paper substrate or in the base paper sheet, it is clear that in Claim 12, the claimed cellulose ether is added to an aqueous paper stock. Accordingly, the invention as recited in Claim 12 is further differentiated from Matsuda,

et al., which nowhere discloses or suggests that cellulose derivatives may be included in the paper substrate, but rather discloses such binders in a coating.

Claims 1, 2, 5, 8, 9 and 14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Agnemo (US 5368689) in view of Hosokawa, et al. and as evidenced by Smook (Handbook for Pulp and Paper Technologies). This rejection is traversed.

The combination of Agnemo and Hosokawa, Agnemo, like Matsuda, only discloses carboxymethyl cellulose at column 3, line 65, where the CMC is described as a coating agent. Thus, Agnemo, like Matsuda, et al., fails to disclose or suggest a cationically modified cellulose ether, but rather discloses a cellulose that is anionic. In addition, Matsuda, et al. discloses its CMC binder is in a coating layer, whereas Hosokawa's, et al. cationically modified cellulose ether is merely described as being in its paper. In this, the arguments with respect to the combination of Matsuda, et al. and Hosokawa, et al. apply. It appears as with all of the other previous rejections, the Examiner fails to appreciate the differences between cationically modified cellulose ethers and CMC or other non-substituted celluloses or cellulose derivatives. This is shown, for example, at page 4 where the examiner alleges that the CMC of Agnemo is interchangeable with the "CMC having a cationic and anionic DS overlaying the claimed cellulose ether...." As noted above, the cationic functionality changes the character of the cellulose ether and provides properties, such as strong adherence to particles that can cause flocculation in coatings that are not seen from the use of non-substituted cellulose derivatives in coatings. In fact, page 3 of the present application explains such differences. On the other hand, where Applicants' have recognized the benefits of the combination of highly filled paper and a cationically modified cellulose ether, none

of the cited references, either alone or in their combination, disclose, suggest or even hint at such benefits resulting from such combination. For all of the above reasons, Claims 1, 2 and 12 - 15 are patentable over the cited references.

Double Patenting

Claims 1, 2 and 14 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over Claims 1 - 8, 15 and 16 of copending Application No. 11/149,613 in view of Stober, et al. The Applicants ask that this rejection be held until all other rejections are resolved at which time a terminal disclaimer will be filed.

Conclusion

The instant application is believed to be in condition for allowance. A Notice of Allowance of claims 1, 2 12 - 15 is respectfully requested. The Examiner is invited to telephone the undersigned at (908) 722-0700 if it is believed that further discussions, and/or additional amendment would help advance the prosecution of the instant application.

If any extension of time for this response is required, applicants request that this be considered a petition therefore. Please charge any required petition fee to Deposit Account No. 14-1263.

Respectfully submitted,

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